

## CLAIMS

What is claimed is:

1 1. A convertible vehicle step assembly for use with trailer hitch, the convertible vehicle step  
2 comprising:

3 a platform having a top plate and central member attached thereto;

4 a main shaft that is slidable with respect to the central member between a first  
5 configuration and a second configuration;

6 a pivot mount having a first end and a second end, wherein the first end is adapted for  
7 attachment to a trailer hitch having a square recess, wherein the second end has a  
8 pivot aperture extending therethrough, wherein the first end is pivotally mounted  
9 to an end of the main shaft that is opposite the central member, and wherein the  
10 main shaft is pivotable with respect to the pivot mount between a lowered  
11 position and a raised position; and

12 a pivot arm locking bracket attached to the pivot mount proximate the second end,  
13 wherein the pivot arm at least partially extends around the main shaft when the  
14 main shaft is in the raised position.

1 2. The vehicle mounted step assembly of claim 1, wherein the platform comprises a frame  
2 attached to the top plate.

1 3. The vehicle mounted step assembly of claim 1, and further comprising a pin that extends  
2 through the pivot arm locking bracket and the main shaft to retain the main shaft in the raised  
3 position.

1       4.       The vehicle mounted step assembly of claim 1, and further comprising a bicycle mount  
2       attached to the platform.

1       5.       The vehicle mounted step assembly of claim 4, wherein the bicycle mount is movable  
2       between an extended position and a retracted position, wherein the bicycle mount is substantially  
3       flat against the platform when in the retracted position.

1       6.       The vehicle mounted step assembly of claim 1, and further comprising a cargo carrier  
2       attached to the platform.

1       7.       The vehicle mounted step assembly of claim 6, wherein the cargo carrier includes a first  
2       section and a second section that are substantially mirror images of each other, and wherein the  
3       first section and the second section each slide over a portion of the platform.

1       8.       The vehicle mounted step assembly of claim 7, wherein the first section and the second  
2       section each include a frame, a top plate, a cross member and an angle piece, wherein the frame  
3       extends around at least a portion of the top plate, wherein the cross member is attached to the  
4       frame to prevent the cargo carrier from moving laterally with respect to the platform, and  
5       wherein the angle piece extends between the frame and the cross member to prevent the cargo  
6       carrier from moving vertically with respect to the platform.

1 9. The vehicle mounted step assembly of claim 1, wherein the main shaft is slidable with  
2 respect to the central member between a shortened sport utility version and a lengthened pick-up  
3 version.

1 10. The vehicle mounted step assembly of claim 1, and further comprising a biasing means  
2 for urging the main shaft to the raised position.

1 11. The vehicle mounted step assembly of claim 1, wherein the pivot mount has an inner  
2 lower support and an outer upper support, wherein the inner upper support is between the first  
3 end and the pivot point, and wherein the outer lower support is between the second end and a  
4 pivot point.

1 12. A method of attaching a vehicle mounted step assembly to a receiver hitch, the method  
2 comprising:

3 providing a platform portion having a top plate and a central member attached thereto;

4 attaching a main shaft at a first position on the central member;

5 pivotally attaching a pivot mount proximate an end of the main shaft that is opposite the  
6 central member;

7 attaching a pivot arm mounting bracket to the pivot mount;

8 maintaining the main shaft in a raised position by extending a clip through the pivot arm  
9 mounting bracket and the main shaft;

10 engaging an end of the pivot mount that is opposite the main shaft with a receiver hitch  
11 on a vehicle; and

12           sliding the main shaft with respect to the central member from the first position to a  
13           second position.

1       13.    The method of claim 12, wherein the main shaft is pivoted vertically with respect to the  
2       pivot mount.

1       14.    The method of claim 12, wherein the main shaft is pivotable about a pivot axis, when the  
2       main shaft is pivoted about the pivot axis to a lowered position, the main shaft contacts an upper  
3       portion of the pivot mount and a lower portion of the pivot mount and wherein the upper portion  
4       and the lower portion are located on opposite sides of the pivot axis.

1       15.    The method of claim 12, and further comprising forming the top plate with a surface area  
2       of at least 300 square inches.

1       16.    The method of claim 12, and further comprising applying an anti-slip coating to the top  
2       plate.

1       17.    The method of claim 12, and further comprising attaching a frame to the top plate and the  
2       central member.

1       18.    The method of claim 12, and further comprising biasing the main shaft to the raised  
2       position.

1 19. The method of claim 12, and further comprising attaching a bicycle rack to the platform  
2 portion.

1 20. The method of claim 12, and further comprising attaching a cargo carrier to the platform.

1 21. The method of claim 20, wherein the cargo carrier includes a first section and a second  
2 section that are substantially mirror images of each other, and wherein the method further  
3 comprising sliding the first section and the second section each over a portion of the platform.

1 22. The method of claim 21, wherein the first section and the second section each include a  
2 frame, a top plate, a cross member and an angle piece, wherein the frame extends around at least  
3 a portion of the top plate, wherein the cross member is attached to the frame to prevent the cargo  
4 carrier from moving laterally with respect to the platform, and wherein the angle piece extends  
5 between the frame and the cross member to prevent the cargo carrier from moving vertically  
6 with respect to the platform.

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